7. MASTER MAKING SECTION

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7. Master Making Section

[Theory of Operation]

1. Heating Data Transmission System

- Function of Thermal Print Head

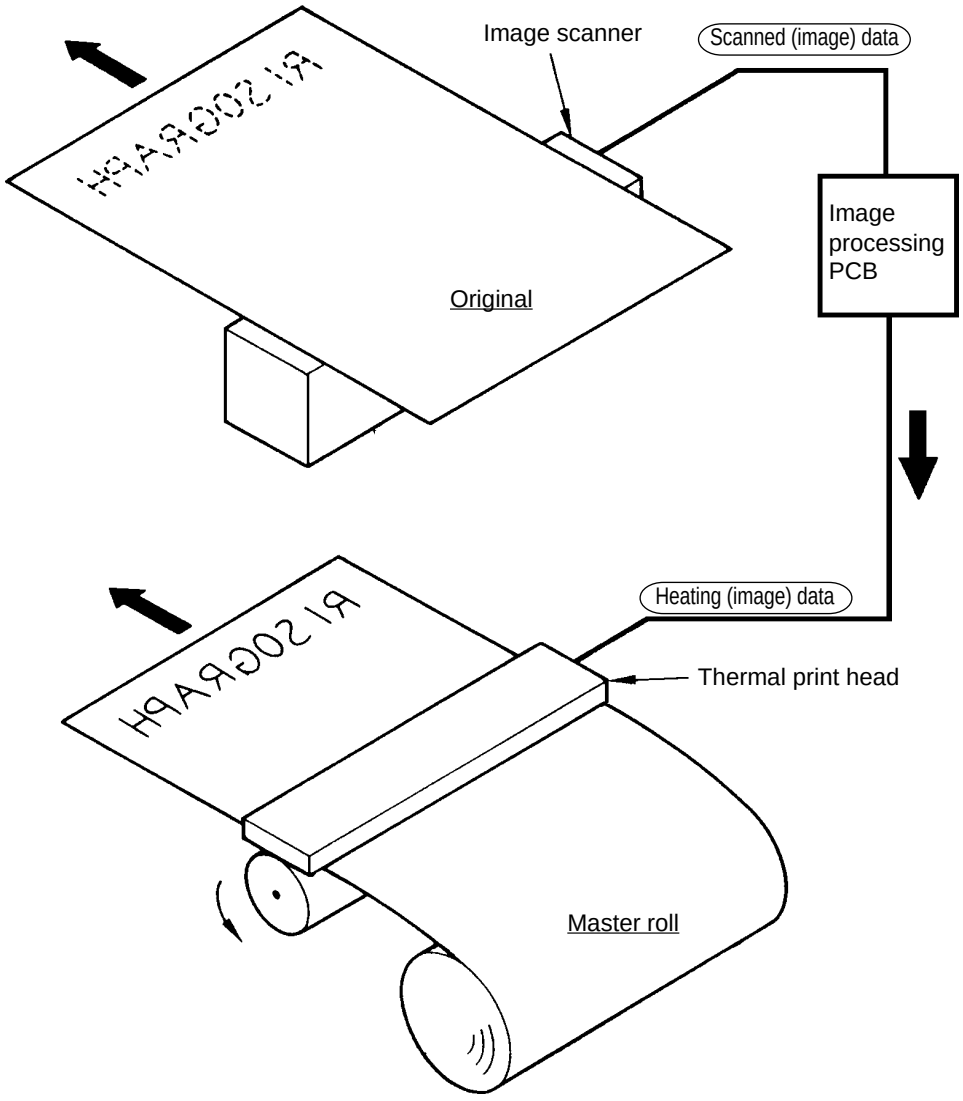
The Thermal print head heats up according to the signals sent from the Image Processing PCB and creates image holes on master material.

- Control of Heating Data Transmission

When the Read and Write Start Signal is turned ON, heating (image) data starts to be transmitted from the Image processing PCB to the Thermal print head for image perforation on a master.
When the Read and Write Start Signal is turned OFF, the data transmission is stopped to finish the image perforation on a master.

- Heating Power Supply

When the START button is pressed to make a master, the TPH control signal is turned ON to supply heating power to the Thermal print head.



2. Thermal Print Head Positioning System

- Basic

The Thermal print head is lowered and raised by the rotation of the Thermal pressure motor.

- Lowering of Thermal Print Head

The Thermal pressure motor rotates until the TPH pressure switch has been actuated ON by the Sw cam, to lower the Thermal print head to the ready position.

- Pressing of Thermal Print Head on Write Roller

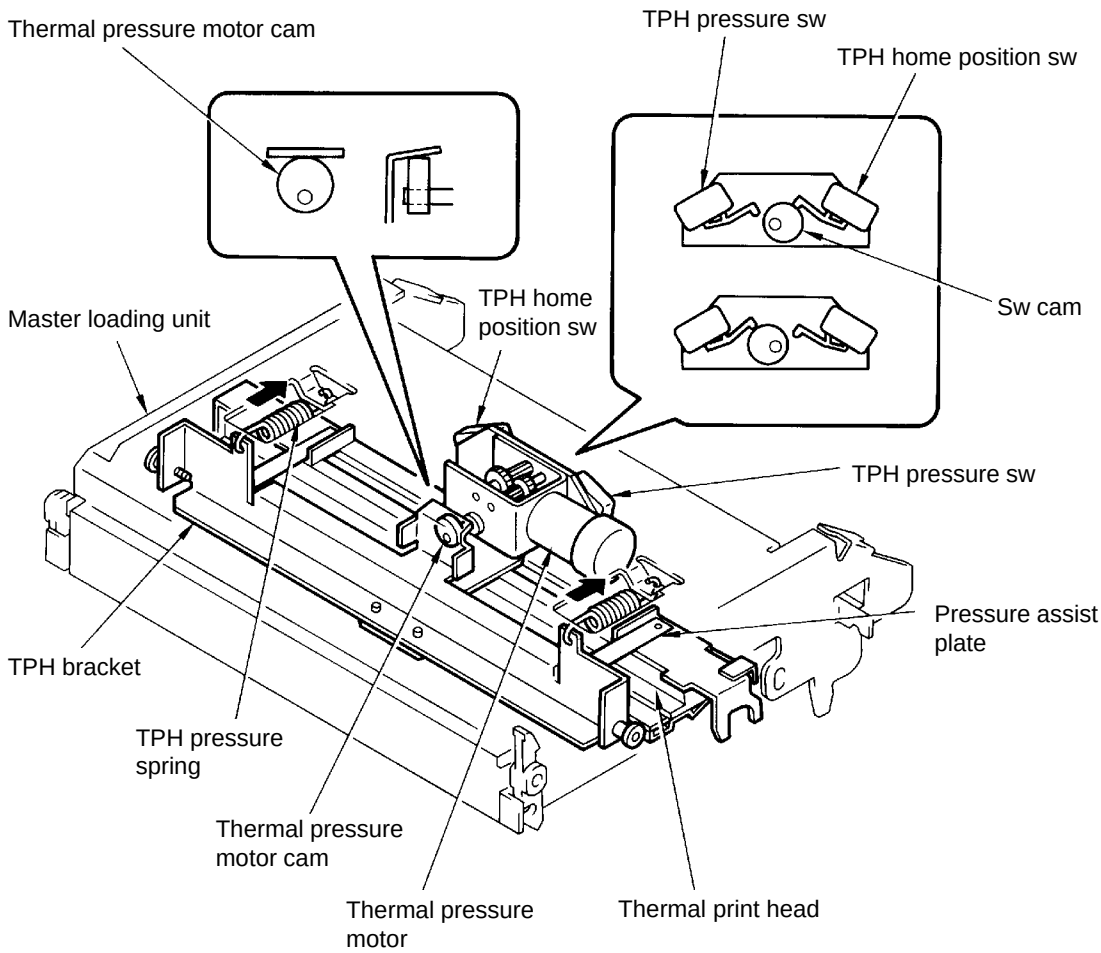
The lowered Thermal print head is pressed onto the Write roller with master material inbetween by the TPH pressure springs and the Pressure assist plates on both sides.

The Pressure assist plates are pushed down by the TPH bracket, pulled by the TPH pressure springs to make the Thermal print head press down.

- Retreat of Thermal Print Head

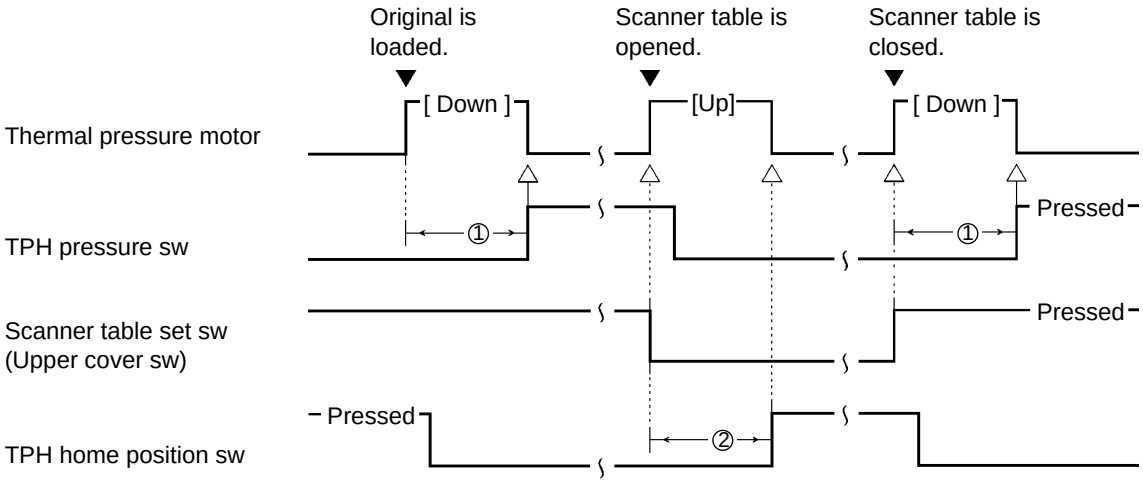
The Thermal pressure motor rotates in reverse until the TPH home position switch has been actuated ON by the Switch cam, to raise the Thermal print head to the home (retreat) position by the Thermal pressure motor cam.

In this condition, the Thermal print head is separated from the Write roller.



- Timing Chart -

Thermal Print Head Positioning System



① If the TPH pressure sw has not been pressed ON **within 4 seconds** after the TPH pressure motor starts to rotate, the machine assumes that the TPH pressure motor has been locked and displays the error code **[E 19]**.

② If the TPH home position sw has not been pressed ON **within 4 seconds** after the TPH pressure motor starts to rotate, the machine assumes that the TPH pressure motor has been locked and displays the error code **[E 19]**.

3. Master Making System

- Start of Master Making

When the Start button is pressed with an original loaded, the TPH control signal is turned ON to supply heating power to the Thermal print head.

A certain period later the Read and Write Start Signal is turned ON, activating the Write pulse motor to rotate the Write roller and starts image data transmission from the Image Processing PCB to the Thermal print head for image perforation on a master.

- Master Feeding

When the Write pulse motor starts rotating, master material is fed pulse by pulse by the clockwise rotation of the Write roller, rotated via the <Write pulse motor pulley-belt-Pulley G> route.

A new-made master is fed further by the Catch rollers (upper) and (lower), also rotated by the Write pulse motor via the <Pulley G-Write roller pulley A-belt-Pulley PM (16)> route.

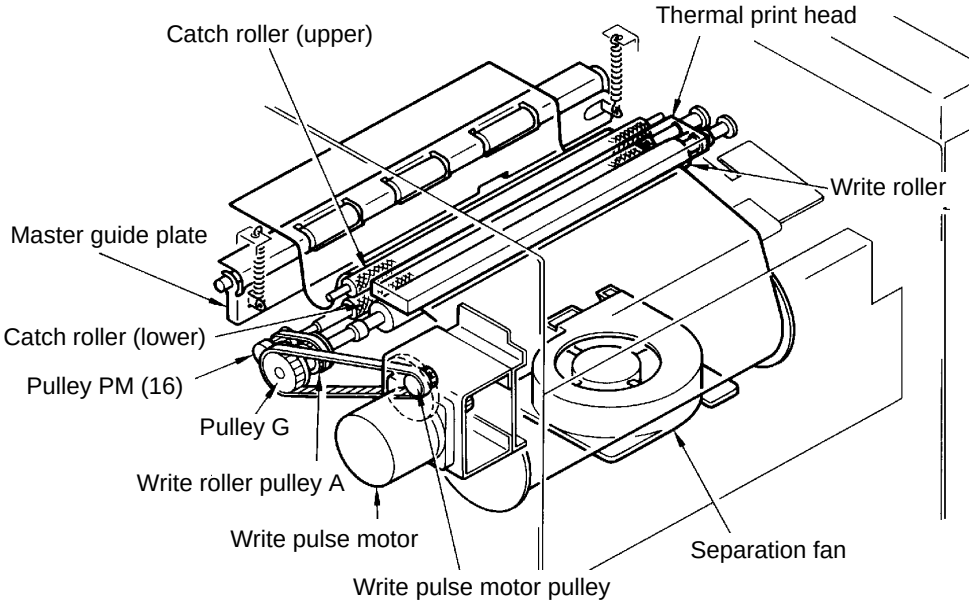
- Finish of Master Making

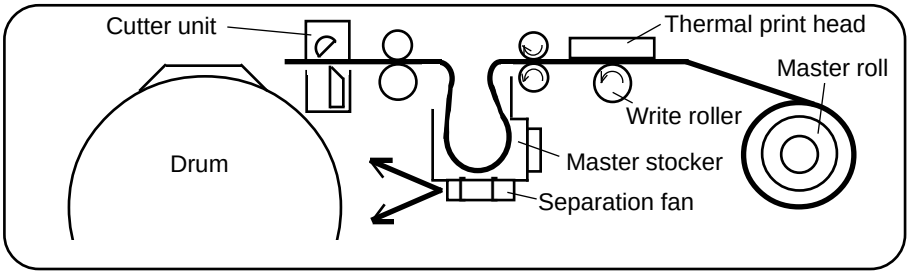
When a certain length of master has been made according to the size of an original or printing paper, the Read and Write start signal is turned OFF, stopping the rotation of the Write pulse motor and the image data transmission to finish image perforation on the master.

At the same time, the TPH control signal is turned OFF to terminate heating power supply to the Thermal print head, raised by the rotation of the Thermal pressure motor to release master material for master loading operation in the next step.

- Storage of a Newly-made Master

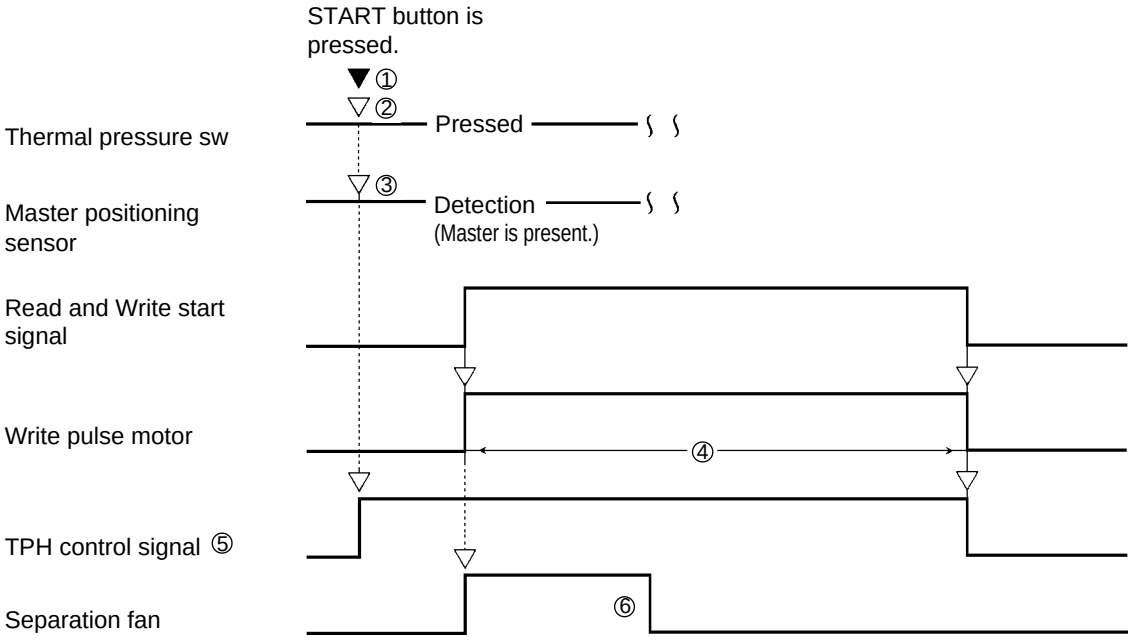
Newly-made masters are pulled into the Master stocker with air suction created by the Separation fan. This happens at the beginning of master making (master removal) operation and stored is there to await loading on the Drum while the old master is removed. **The GR series does not use air suction to pull the master in to the Master stocker.**





- Timing Chart -

Master Making System



① The START button input is not accepted while an original is being loaded into the ADF unit.

② If the TPH pressure switch is not pressed ON, the master making operation starts after the Thermal pressure motor is rotated until the TPH pressure switch has been pressed ON.

③ If the Master positioning sensor detects no master (reflected light), the master making operation starts after a master is fed to the Master positioning sensor.

④ The Write pulse motor is deactivated at the same time the Read and Write start signal is turned OFF.
If the Write pulse motor has not been rotated by **4566 pulses** at this point, it is deactivated only after it has been rotated by **4566 pulses** because a newly-made master can't be fed to the Drum without some master stored into the Master stocker.

⑤ When the TPH control signal is turned ON, power (voltage) is applied to the Thermal print head.

⑥ As for the time of deactivation of the Separation fan, refer to the timing chart of Master removal system on the page VIII-3.